MaryLena Bleile

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Experience

Postdoctoral Research Fellow: June 2023-present — **Memorial Sloan-Kettering Cancer Center**
Biomarker development using spatial transcriptomics — *Department of Epidemiology and Biostatistics*

Doctoral Student: 2019-2023 — **Southern Methodist University** and **UT Southwestern Medical AI & Automation lab**
Reinforcement Learning & Bayesian modelling for adaptive radiotherapy — *Biostatistics Ph.D awarded May 13 2023*

Technology Intern: 2018-2019 — **Zephyr Sleep Technologies**
Contributed to successful application for FDA approval of the MATRx Plus DataViewer

Programming: R, Python, Linux, High-Performance Computing, SAS

Awards

Biopharmaceutical Section Award — *American Statistical Association*
NSF/Harshbarger Student Travel Award — *Southern Regional Council of Statistics*
Dean's Award — *SMU Moody School of Graduate Studies*
Poster Competition Award (2020 and 2021) — *Conference of Texas Statisticians*
Statistical Science Department Award — *Southern Methodist University*

Invited Seminars & Panels

Biomarkers for Neurodegenerative Disorders and Cancers *BioTechX: 2024*

Cell State Heterogeneity Drives the Need for Reference scRNA-seq Data When Deconvolving Spatial Transcriptomics *NYU Langone Health (2024)*

A Domain-Oriented Analysis Pipeline for Spatial Transcriptomics with application to Melanoma Data *Columbia University (2023)*

Leveraging AI for Health *Women in AI virtual seminar series (2023)*

Statistical and Machine Learning Methods for Adaptive Radiotherapy Treatment Plans

Onc.AI (2022)
Memorial Sloan Kettering Cancer Center (2022)

Animal Sacrifice as a Potential Cause of Decelerating Tumor Growth in Late-State Xenograft Experiments *Berry Consulting (2022)*

Research Bibliography

[1] **MaryLena Bleile**, James Smithy, Xiyu Peng, Miranda Hunter, Allison Reiner, Fiona Ehrich, Jasme Lee, Andrea Moy, Margaret Callahan, Richard White, Katherine Panageas, and Ronglai Shen. Cell state heterogeneity must be considered when deconvolving spatial transcriptomic oncology data. *Oral Presentation at the Joint Statistical Meetings*, 2024.

[2] **MaryLena Bleile**, James Smithy, Xiyu Peng, Miranda Hunter, Allison Reiner, Fiona Ehrich, Jasme Lee, Andrea Moy, Margaret Callahan, Richard White, Katherine Panageas, and Ronglai Shen. Navigating the cell state complexity in spatial transcriptomics deconvolution. *Manuscript submitted to Cancer Resesach Communications*, 2024.

[3] Xiyu Peng, James Smithy, Mohammad Yosofand, **MaryLena Bleile**, et al. Decoding spatial tissue architecture: A scalable Bayesian topic model for multiplexed imaging analysis. *R package available at https://xiyupeng.github.io/SpaTopic/*, 2024.

[4] Samiha Rouf, Casey Moore, Debabrata Saha, Dan Nguyen, **MaryLena Bleile**, Robert Timmerman, Hao Peng, and Steve Jiang. PULSAR effect: Revealing potential synergies in combined radiation therapy and immunotherapy via differential equations. *arXiv preprint arXiv:2402.06101*, 2024.

[5] Yixun Xing, Casey Moore, Debabrata Saha, Dan Nguyen, **MaryLena Bleile** Xun Jia, Robert Timmerman, Hao Peng, and Steve Jiang. Mathematical modeling of the synergetic effect between radiotherapy and immunotherapy. *arXiv preprint arXiv:2401.00024*, 2023.

[6] Fiona Ehrich, Xiyu Peng, Jasme Lee, **MaryLena Bleile**, Mohammad Yosofand, Katherine Panageas, and Ronglai Shen. An evaluation of spatial metrics in the analysis of whole-slide multiplex immunofluorescence data. *WNAR/IBS/Graybill 2024 conference*, 2024.

[7] **MaryLena Bleile**. Optimizing tumor xenograft experiments using Bayesian linear and nonlinear mixed modelling and Reinforcement Learning. *Dissertation Archives at SMU Scholar*, 2023.

[8] **MaryLena Bleile**, et al. Imputation of truncated tumor growth data via Bayesian mixed modelling. *Medical Phyiscs (online-only edition)*, 2021.

[9] **MaryLena Bleile**, et al. Towards the Optimal Combination of Radiotherapy and Immunotherapy Using Deep Reinforcement Learning. *Medical Physics (online-only edition)*, 2022.

[10] David Hein, Weiye Deng, **MaryLena Bleile**, et. al. Racial and ethnic differences in genomic profiling of early-onset colorectal cancer. *Journal of the National Cancer Institute*, 114(5):775–778, 2022.

[11] Adam Richie-Halford, ... , **MaryLena Bleile**, et al. An analysis-ready and quality controlled resource for pediatric brain white-matter research. *Scientific Data*, 9(1):1–27, 2022.

[12] Binwei Deng, ... , **MaryLena Bleile**, et. al. Quality control tests of the front-end optical link components for the ATLAS liquid argon calorimeter phase-1 upgrade. *Journal of Instrumentation*, 16(08):P08006, 2021.

[13] **MaryLena Bleile**, Bianca Luedeker, and Brandon Patterson. A Bayesian analysis of heavy metal subgenre prevalence in Northern Europe and the West. *Journal of Metal Music Studies*, 08(03), 2022.

Outreach & Mentoring

Mentor for Undergraduate Students (2023) — *SMU DataFest*
Mentor for Undergraduate Students (2022) — *Southern Regional Conference on Statistics*
Graduate Student Panelist (2022) — *Southern Regional Conference on Statistics*
Teaching Assistant: Introduction to Biostatistics (2022) — *UT Southwestern Medical Center*
Teaching Assistant: Music Theory I (2017) — *Southern Methodist University*

Other Acheivements

B.S., B. Mus.: 2015-2019 — **Statistical Science, Cello Performance**
Minor: Mathematics — *Southern Methodist University*
First Class Honours - GPA: 3.9

Brazilian Jiu-Jitsu:

Gold Medal (Submission only, -115lb; uncontested in -105lb) — *Good Fight NY/NJ 2023 Winter Open*

Judo:

Gold Medal (-48kg) — *2022 Dallas Open Judo Championships*
Gold Medal (-52 kg; uncontested in -48kg) — *2022 NTX Summer Slam*